Service-Oriented Architecture

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Agenda for this session:

- Key concepts and considerations for SOA implementation
- Questions and Answers

Benefits / Motivation

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Why would we tackle this?

- Allows agencies to reuse **common data** in common ways
- Moves toward an **assembly** process versus **from-scratch** development
- Makes it easier to do business with Iowa
- Allows business owners to think in terms of their **process**, not screens & fields

SOA Protocols

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Many options:

- SOAP/HTTP(S)
- SOAP on other transports (SMTP, SFTP, XMPP, other)
- MQ Series/JMS (Message-Oriented Middleware)

What's the right balance?

- More channels = more effort, more patching, more $$?
- Fewer channels = fewer options for agencies / apps?

Synchronous vs. Asynchronous

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Synchronous

- "Request-Reply", traditional function call (API)
- Caller waits for a reply
- Can be stateful (less data exchanged)
- Better for complex data where an answer is required before caller can proceed
- Generally "tight" coupling

Synchronous vs. Asynchronous

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Asynchronous

- "Publish/Subscribe", "Fire and Forget"
- Caller waits for a reply (or doesn't!)
- State generally contained in message
- More scalable, less immediate
- Generally "loose" coupling

Interface vs. Document

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Interface-based API

- Caller invokes methods on server
- Rich semantics (constants, method names, etc.)
- Easier initial integration
- More fragile over time (changes to API break clients)

Interface vs. Document

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Document-based API

- Caller sends messages to server
- Generally a single method with flexible payload
- Slightly longer initial integration period
- Less fragile over time (easier to extend documents)

Authoritative Source

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- The "owner" of a piece of data
- Basic requirement for data sharing
- Owner may share columns (fields) or rows (filters)
- Owner may change over time or status of data
- Must be acknowledged and coordinated among users of the data

Canonical Model

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- "Standard format" of data (address, service, time period, financial transactions, etc.)
- Standard meanings for defined fields
- Applications may use their own format, but must accept and publish the standard
- Adapters (external modules) can help with translation into and out of each app.

Service Catalog/ Metadata

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- "Dictionary" of what is available in an enterprise
- Must include field names, data types, but also business meaning
- Can be electronic (DB) but docs are okay, too
- Should observe a defined ontology (topic structure) – Identity, Environment, Government, etc.

SOA Architecture

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Questions?